P13.11 Maternal serum levels of PIGF and sFlt-1 in a low-risk population of pregnant women in the third trimester in predicting preeclampsia

Roubalova L., Langova K., Kroutilova V., Durdova V., Kratochvilova T., Lubsky M.

Palacky University Olomouc, Faculty of Medicine and Dentistry, University Hospital Olomouc, Czech Republic

Supported by Ministry of Health, Czech Republic – conceptual development of research organization (FN01, 0098892)

Objective

Angiogenic factors (PIGF - placental growth factor, sFlt-1 - soluble fms-like tyrosine kinase 1) play a key role in the pathogenesis of preeclampsia (PE). The aim of the study was to assess maternal serum levels of PIGF, sFlt-1 and the sFlt-1/PIGF ratio in a low-risk population of pregnant women in the third trimester and evaluate the cut-off value in predicting PE.

Methods

In a prospective cohort study, in a group of 482 pregnant women with singleton pregnancies, maternal serum PIGF and sFlt-1 were assessed using the Thermo Fisher assays on a Kryptor Compact platform. PIGF and sFlt-1 were assessed two times (at 30–33 and 36–37 gestational weeks) and the sFlt-1/PIGF ratio was calculated. PE was diagnosed according to the International Society for the study of Hypertension in Pregnancy. A receiver operating characteristic (ROC) analysis was used to determine the threshold of the PIGF and sFlt-1 levels and sFlt-1/PIGF ratio in predicting PE.

Results

PE was diagnosed in 1.2% of pregnant women (6/482) at 34-40 gestational weeks (median 38w 1d) and delivered in one week after diagnosis. ROC analysis showed that all parameters were able to predict PE in both gestational periods. AUC (area under the curve) was excellent for all parameters regardless of gestational age and exceeded a level of 0.90. The greatest accuracy was found for the sFlt-1/PIGF ratio, at 30-33 weeks (AUC = 0.96), and particularly at 36-37 weeks (AUC = 0.97). The optimal sFlt-1/PIGF ratio cut-off at 30-33 weeks was 13 with sensitivity 100% and specificity 94% and at 36-37 weeks cut-off 86 with sensitivity 100% and specificity 95%, respectively.

Conclusion

Maternal serum levels of PIGF and sFlt-1 in a low-risk population of pregnant women in the third trimester can predict PE, particularly the sFlt-1/PIGF ratio, but the cut-off value increases with gestational age.